1125-49-1486   **Michael McAsey*** (`mcasey@bradley.edu`), 1501 W Bradley Ave, Bradley University, Peoria, IL 61625, and **Libin Mou**. *Tax Policy to Minimize the Gini Index.* Preliminary report.

The Gini index is a simple measure of inequity in the distribution of income (or other attributes) in a society. The index is a number between 0 and 1 measuring the area in the 1×1 square between the line $y = x$ (perfect equity) and the Lorenz curve of the society. The Lorenz curve $L(p)$ is the fraction of the total income that the holders of the lowest pth fraction of income possess. The goal is to find a tax scheme to minimize the Gini index, $G = 2 \int_0^1 [p - L(p)]dp$, by raising the Lorenz curve. The re-distribution function $q(x)$ of incomes normalized on $[0, 1]$ gives the after-tax income; it satisfies (1) $Bx \leq q(x) \leq Ax$, (2) $q'(x) \geq r \geq 0$, and (3) $q(x)/x$ is decreasing. The optimal q is a piecewise linear function that allows lower incomes to be most preserved ($q(x) = Ax$ for x small), higher incomes to be least preserved ($q(x) = Bx$ for x large) and has a linear transition between the two. (Received September 17, 2016)

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